

Electrical Eye Focuses Over Campus

By CHET COBB

Strange things are going on in the stacks of Sterling Memorial Library.

On Floor 6M a wire runs along the rack of books and inside a locked cubicle. And from inside the cubicle some sort of an electric eye overlooks the campus.

Has fortress Yale been infiltrated by the CIA? Is Big Brother watching over the campus? To the casual observer the answer might be "yes."

But David Rumsey, a research associate in the Art and Architecture Department, says "no." In fact, a group of Yale faculty members who call themselves "Pulsa" are conducting an experiment in laser beam transmission. The experiment, which began three weeks ago, is under the direction of Rumsey.

Laser in A&A Building

The electrical apparatus in the stacks of the library is a laser beam receiver and represents only one part of the project.

The other, a laser, is 1200 feet away, on the fifth floor of the Art and Architecture Building. The receiver is specifically designed to pick up the laser's emission, a reddish laser beam.

According to Rumsey, the project's goal is "to modulate a laser beam so it

can carry audio and video signals, like a wire of light. We are connecting functional audio and video equipment to the laser and to the receiver."

At this stage, the group is still having difficulty with distortions in the reception of the laser beam.

"When the system is operational, which will hopefully be next week, we will drop wires to the floor at each end of the beam and people will be able to talk to and see each other simultaneously," said Rumsey.

'Won't Burn Your Eyeballs'

Rumsey observed that this laser, a "helium-neon laser", "isn't the type which burns your eyeballs out."

The word "laser" stands for "light amplification through stimulated emission of radiation."

"In this experiment the modulator is almost as important as the laser," said Rumsey. The modulator is a tube through which the laser beam passes. It modulates the beam, making possible the transmission of audio and

laser is about \$2,000," said Rumsey. This figure excludes the cost of the audio and video equipment. "Pulsa" is receiving a grant from the Graham Foundation for the experiment.

The "Pulsa" group is associated

with the art school. For the past four years it has divided its time between the fine arts and research. The group first researched in the field of light and sound and is now moving into the field of communication.

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Public Communication Channel

Rumsey's immediate concern is technical, "to make the system operate effectively." The long-term objective of the group, said Rumsey, "is to provide a public, open channel type of communication."

"We chose these two points, the library and the Art and Architecture Building, because they were easily available to us and were relatively close together. The closeness makes the transmission that much easier. If we are successful at this distance, perhaps next time we'll double it," said Rumsey.

The power of the laser is the key to the distance which can be traversed. According to Rumsey, "this particular laser is commercially available, harmless, low power, and has an optimum range of four miles."

video signals by changing the intensity of the beam of light.

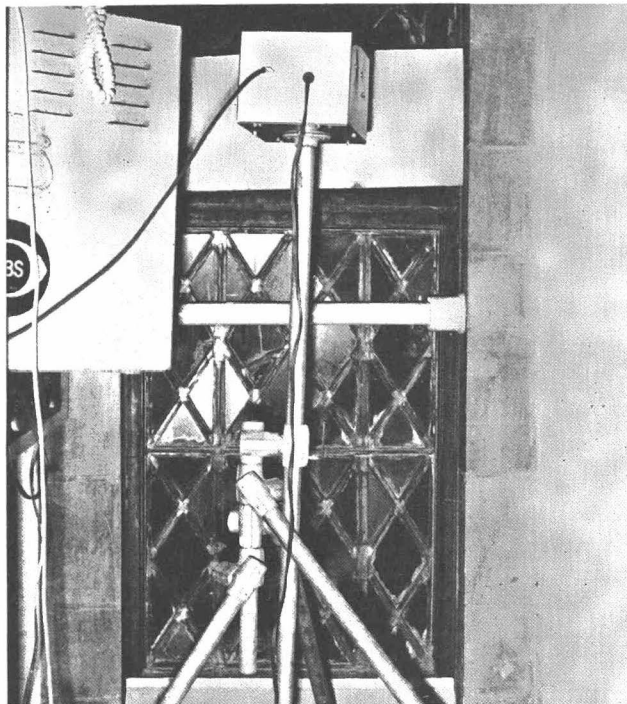
The light output of any laser is extremely monochromatic, relatively intense, and highly collimated.

Although the project is still in the experimental stage at Yale, the same experiment has been done successfully at a few other universities. A link is now operable between two hospitals in Cleveland.

Advantages Of Laser Broadcasting

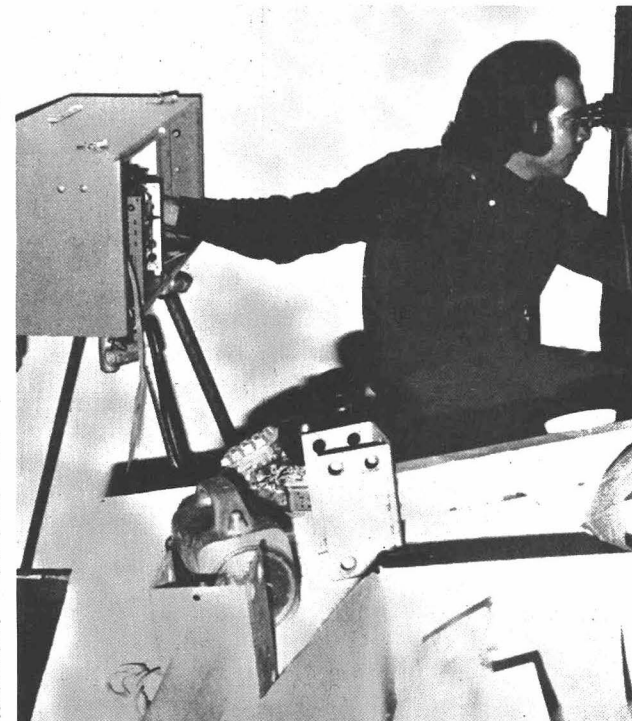
According to Rumsey, "This type of transmission has many advantages over ordinary broadcasting. By comparison, it's less expensive, not regulated by the government, and doesn't contribute to the problem of overcrowded air space." Laser beams can intersect without interfering with each other.

"The cost of a one-way link with a



Jim McDonald

Equipment on Floor 6M of the Sterling Memorial Library stands ready to receive the TV-via-laser transmission from Rumsey, who is five blocks away.



Jim McDonald

Pulsa director David Rumsey, stationed on the fifth floor of the Art and Architecture Building, takes careful aim before "shooting" a laser beam carrying an audio-visual transmission across campus.